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- Published:
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: USE OF PLEUROMUTILINS FOR THE TREATMENT OF DISORDERS CAUSED BY *HELICOBACTER PYLORI*

(57) Abstract: A method of preventing or treating diseases mediated by *Helicobacter pylori*, comprising administering to a subject in need of such treatment an effective amount of a pleuromutilin.



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/04173

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/22 A61K31/265 A61P31/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 00136 A (ROWE JAMES BABER) 7 January 1999 (1999-01-07) claims 1,2,4,5,21 ---	1-5,7
Y	WO 01 09095 A (ASCHER GERD ;BERNER HEINZ (AT); BIOCHEMIE GMBH (AT); HILDEBRANDT J) 8 February 2001 (2001-02-08) cited in the application claims 1-17 page 11, line 21 - line 28 ---	6
Y	EP 0 153 277 A (SANDOZ AG ;SANDOZ AG (CH); SANDOZ AG (DE)) 28 August 1985 (1985-08-28) cited in the application claims 1-9 --- -/--	6



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
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- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

30 July 2003

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Internat Application No

PCT/EP 03/04173

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02 04414 A (ASCHER GERD ;BERNER HEINZ (AT); BIOCHEMIE GMBH (AT)) 17 January 2002 (2002-01-17) cited in the application claims 1-9 page 7, line 16 - line 23 ----	1-7
A	WO 02 22580 A (ASCHER GERD ;BERNER HEINZ (AT); BIOCHEMIE GMBH (AT); HILDEBRANDT J) 21 March 2002 (2002-03-21) cited in the application the whole document ----	1-7
A	SHINOHARA K ET AL: "GASTRIC DISEASES RELATED TO HELICOBACTER PYLORI AND EPSTEIN-BARR VIRUS INFECTION" MICROBIOLOGY AND IMMUNOLOGY, TOKYO, JP, vol. 42, no. 6, 1998, pages 415-421, XP001098551 ISSN: 0385-5600 the whole document ----	1-7
A	DORNHELM P ET AL: "THE EFFECTS OF TIAMULIN, A SEMISYNTHETIC PLEUROMUTILIN DERIVATIVE, ON BACTERIAL POLYPEPTIDE CHAIN INITIATION" EUROPEAN JOURNAL OF BIOCHEMISTRY, BERLIN, DE, vol. 91, no. 2, November 1978 (1978-11), pages 465-473, XP000950040 ISSN: 0014-2956 the whole document -----	1-7

INTERNATIONAL SEARCH REPORT

Int'l application No.
PCT/EP 03/04173

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 3-4 and 5-7, as far as they refer back to the method, are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internal Application No
PCT/EP 03/04173

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9900136	A	07-01-1999	AU 746054 B2	11-04-2002
			AU 8093198 A	19-01-1999
			WO 9900136 A1	07-01-1999
			BR 9810944 A	26-09-2000
			EP 1017402 A1	12-07-2000
			JP 2002511865 T	16-04-2002
			NZ 502445 A	28-03-2003
			US 6303572 B1	16-10-2001
			US 6468964 B1	22-10-2002
WO 0109095	A	08-02-2001	AU 757799 B2	06-03-2003
			AU 6832600 A	19-02-2001
			BR 0012880 A	09-04-2002
			CA 2380980 A1	08-02-2001
			CN 1364158 T	14-08-2002
			CZ 20020345 A3	15-05-2002
			WO 0109095 A1	08-02-2001
			EP 1198454 A1	24-04-2002
			HU 0202071 A2	28-10-2002
			JP 2003506354 T	18-02-2003
			NO 20020383 A	24-01-2002
			SK 1272002 A3	02-07-2002
			TR 200103764 T2	21-06-2002
EP 0153277	A	28-08-1985	DE 3405632 A1	22-08-1985
			DE 3413708 A1	24-10-1985
			AT 29132 T	15-09-1987
			AU 585209 B2	15-06-1989
			AU 3877385 A	12-09-1985
			CA 1249281 A1	24-01-1989
			CY 1565 A	17-05-1991
			DD 253616 A5	27-01-1988
			DE 3560511 D1	01-10-1987
			DK 72885 A ,B,	18-08-1985
			EP 0153277 A2	28-08-1985
			ES 8606262 A1	01-10-1986
			FI 850654 A ,B,	18-08-1985
			FI 921848 A ,B,	24-04-1992
			GR 850415 A1	18-06-1985
			HK 103690 A	21-12-1990
			HU 39155 A2	28-08-1986
			IE 58232 B1	11-08-1993
			IL 74355 A	29-04-1988
			JP 1886041 C	22-11-1994
			JP 6008278 B	02-02-1994
			JP 60199870 A	09-10-1985
			KR 9201990 B1	09-03-1992
			LV 5764 A4	20-12-1996
			NZ 211131 A	30-08-1988
			PH 21588 A	11-12-1987
			PL 251972 A1	03-12-1985
			SG 69290 G	23-11-1990
			SU 1582985 A3	30-07-1990
			US 4675330 A	23-06-1987
			ZA 8501190 A	24-09-1986
WO 0204414	A	17-01-2002	AU 7638901 A	21-01-2002
			CA 2412932 A1	17-01-2002

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/04173

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0204414 A		CZ 20030042 A3	16-04-2003
		WO 0204414 A1	17-01-2002
		EP 1305282 A1	02-05-2003
		NO 20030100 A	09-01-2003
WO 0222580 A	21-03-2002	AU 9185401 A	26-03-2002
		BR 0113837 A	03-06-2003
		CA 2418538 A1	21-03-2002
		WO 0222580 A1	21-03-2002
		EP 1320525 A1	25-06-2003